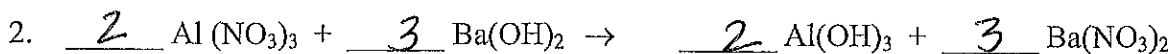
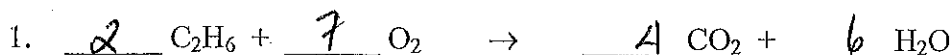
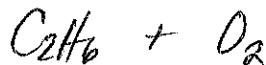


I. Balance the following equations:

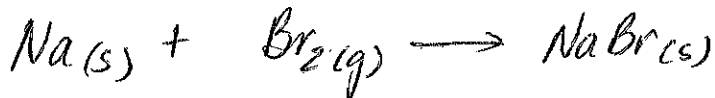
Is equation # 4 an endothermic or an exothermic reaction? (circle one)

List the reactants in reaction #1

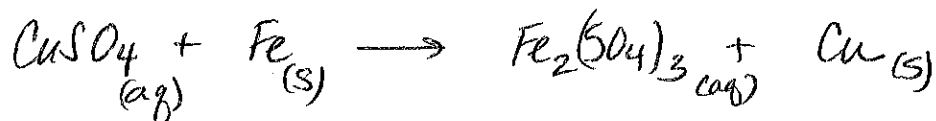


II. Write following word equations. ***Be sure to note the physical state of each reactant and product***

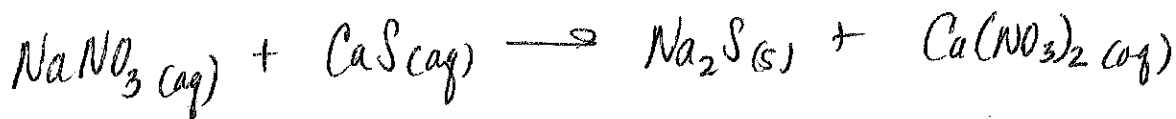
1. Sodium metal combines with bromine gas to form solid sodium bromide



2. Aqueous copper (II) sulfate reacts with solid iron to produce aqueous iron (III) sulfate and metallic copper.



3. Aqueous sodium nitrate combines with aqueous calcium sulfide to form solid sodium sulfide and aqueous calcium nitrate.

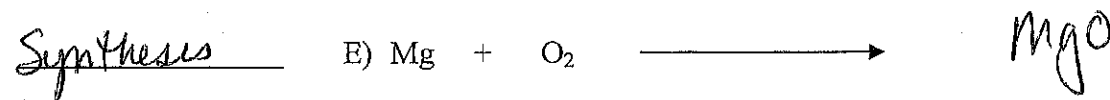
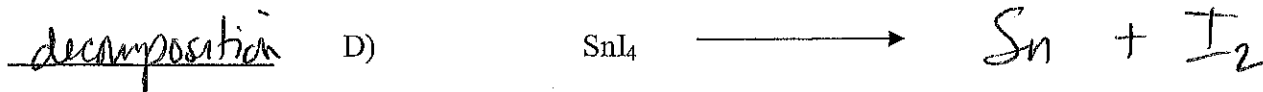
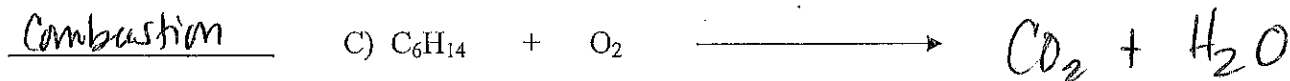
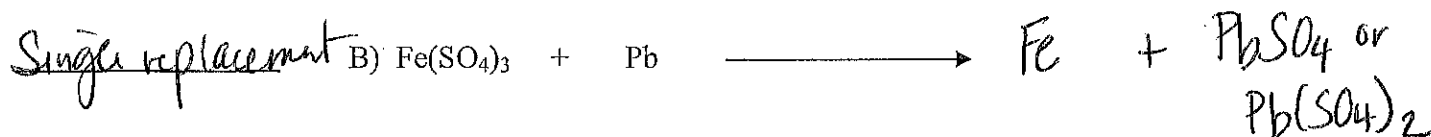
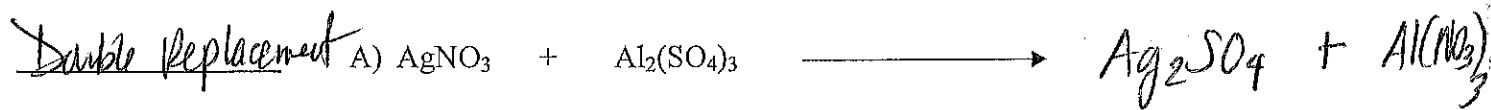


III. Identify the physical state of each of the following compounds as solid (s) or aqueous (aq)

(s) Calcium Carbonate (s) PbSO_4 (aq) Potassium sulfide (aq) $(\text{NH}_4)_2\text{S}$.

IV. Predict the products of the following reactions and determine the type of reaction. You do not have to balance the equation or write the physical states of the products.

REACTION TYPE



CHEMICAL REACTIONS & EQUATIONS

Study Guide

1. Write the word or phrase from the list that best completes each statement.

activation energy	combustion	enzymes	limiting reactant	soluble
catalyst	concentration	equilibrium	product	synthesis
chemical reaction	decomposition	inhibitor	reactant	coefficient
double displacement	insoluble	single displacement		

- a. The replacement of hydrogen from water by sodium is an example of a(n) Single Replacement/Displacement reaction.
- b. In order for a chemical reaction to take place, the particles involved must collide with a sufficient amount of activation energy.
- c. In order to balance a chemical equation, it may be necessary to add a(n) coefficient before one or more of the symbols or formulas.
- d. A precipitate forms in a chemical reaction when a(n) insoluble (solid) substance is formed during the reaction.
- e. Synthesis is a type of chemical reaction in which a substance combines rapidly with oxygen to form oxides.
- f. A chemical reaction is in a state of equilibrium when the rate of products being formed equals the rate of reactants being formed.
- g. A(n) reactant is any substance that produces other substances in a chemical reaction.
- h. Chemists often add a(n) catalyst to a reaction if they want to increase the rate at which the reaction is taking place.
- i. A(n) synthesis reaction is one in which two or more substance combine to form a single product.
- j. The human body contains enzymes, which are catalysts that change the rates of biochemical reactions.
- k. Sugar is a(n) soluble substance because it dissolves in water.
- l. A chemical change is also known as a(n) Chemical Reaction.
- m. An example of a(n) Decomposition reaction is the electrolysis of water, in which an electric current breaks down water into two new substances.
- n. You can slow down a reaction by adding a(n) inhibitor.
- o. A term used to describe the amount of a substance contained in a certain volume is Concentration.
- p. The carbon dioxide formed when coal burns is a(n) product of that reaction because it is formed as a result of the reaction.

2. For each item in column 1, write the letter of the matching item in column 2.

	COLUMN 1	COLUMN 2
1.	<u>C</u> limiting reactant	A. $2\text{Na} + \text{Cl}_2 \rightarrow 2\text{NaCl}$
2.	<u>K</u> double displacement	B. burning of coal in oxygen
3.	<u>H</u> coefficient	C. an amount of reactant present in a small enough amount to determine when the reaction will stop
4.	<u>I</u> catalyst	D. NaCl in $2\text{Na} + \text{Cl}_2 \rightarrow 2\text{NaCl}$
5.	<u>O</u> decomposition	E. substance that slows down a reaction
6.	<u>A</u> synthesis	F. energy required to get a reaction started
7.	<u>L</u> insoluble	G. $\text{Cl}_2 + 2\text{NaBr} \rightarrow \text{Br}_2 + 2\text{NaCl}$
8.	<u>M</u> dynamic equilibrium	H. the 2 in 2NaCl
9.	<u>D</u> product	I. substance that speeds up a reaction without being used up
10.	<u>J</u> chemical reaction	J. any chemical change
11.	<u>F</u> activation energy	K. $2\text{KBr} + \text{Pb}(\text{NO}_3)_2 \rightarrow 2\text{KNO}_3 + \text{PbBr}_2$
12.	<u>B</u> combustion	L. substance that appears as a precipitate
13.	<u>N</u> reactant	M. rate of $\text{A} + \text{B} \rightarrow \text{AB}$ equals rate of $\text{AB} \rightarrow \text{A} + \text{B}$
14.	<u>G</u> single displacement	N. either Na or Cl_2 in $2\text{Na} + \text{Cl}_2 \rightarrow 2\text{NaCl}$
15.	<u>E</u> inhibitor	O. $\text{Ca}(\text{OH})_2 \rightarrow \text{CaO} + 2\text{H}_2\text{O}$

3. Each of the equations below contains at least one error. Find and correct the error so that the equation is correctly balanced.

